

# **LEGEND INTERNATIONAL INVESTMENTS PTY LTD**

**Annual report on EL 25791 (*Coppock Bore*)  
from 22 February 2008 to 21 February 2009  
Central Australia, Northern Territory**

**Tenement Holder: Legend International Investments Pty Ltd**

**Distribution:**

- DRDPIFR Darwin, NT
- Legend International Investments Pty Ltd, Darwin

**Yan Yao  
April 2009**

## **SUMMARY**

The tenement was applied for on 7 December 2006 by Legend International Investments Pty Ltd and was granted on 22 February 2008 for a period of 6 years. It covers 8 blocks (22.53 km<sup>2</sup>). In 2008, Legend International entered into an agreement with NU Power Resources Limited to explore uranium in the project area.

The geological mapping done so far indicate that the Strangways Complex consists essentially of high-grade metamorphic rocks. In EL 25791, much of the area, particularly northern part is covered by recent sediments. In the southern part of the tenement rocks of the Arunta Block may dominate which have been overlain by recent sediments including alluvium, red sand accumulation and minor calcrete. TMI image of the project area shows that under the recent sedimentary cover, particularly the southern part of the area is dominated by basement rocks of the Arunta Block.

An AEM and gravity survey of the project area was undertaken during the reporting period ending on 21 February 2009. Exploration activities also included literature review and a detailed technical review which identified base metals and gold potential of the project area. AEM survey revealed that sedimentary sequence is not thick enough to facilitate hydrological regime which may be responsible for surficial/channel type uranium mineralisation.

In the next reporting period, a detailed geological mapping of the area will be undertaken. A campaign of RC drilling will be conducted to access to bed rock geology. Geochemical samples collected during mapping and drilling will be analysed for base metals, gold and uranium.

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## **1.0 INTRODUCTION**

EL 25791 is located about 1400 km south of Darwin and approximately 84km north of Alice Springs. This report covers the exploration activities undertaken during the reporting period year ending on 21 February 2009.

## **2.0 TENEMENT STATUS**

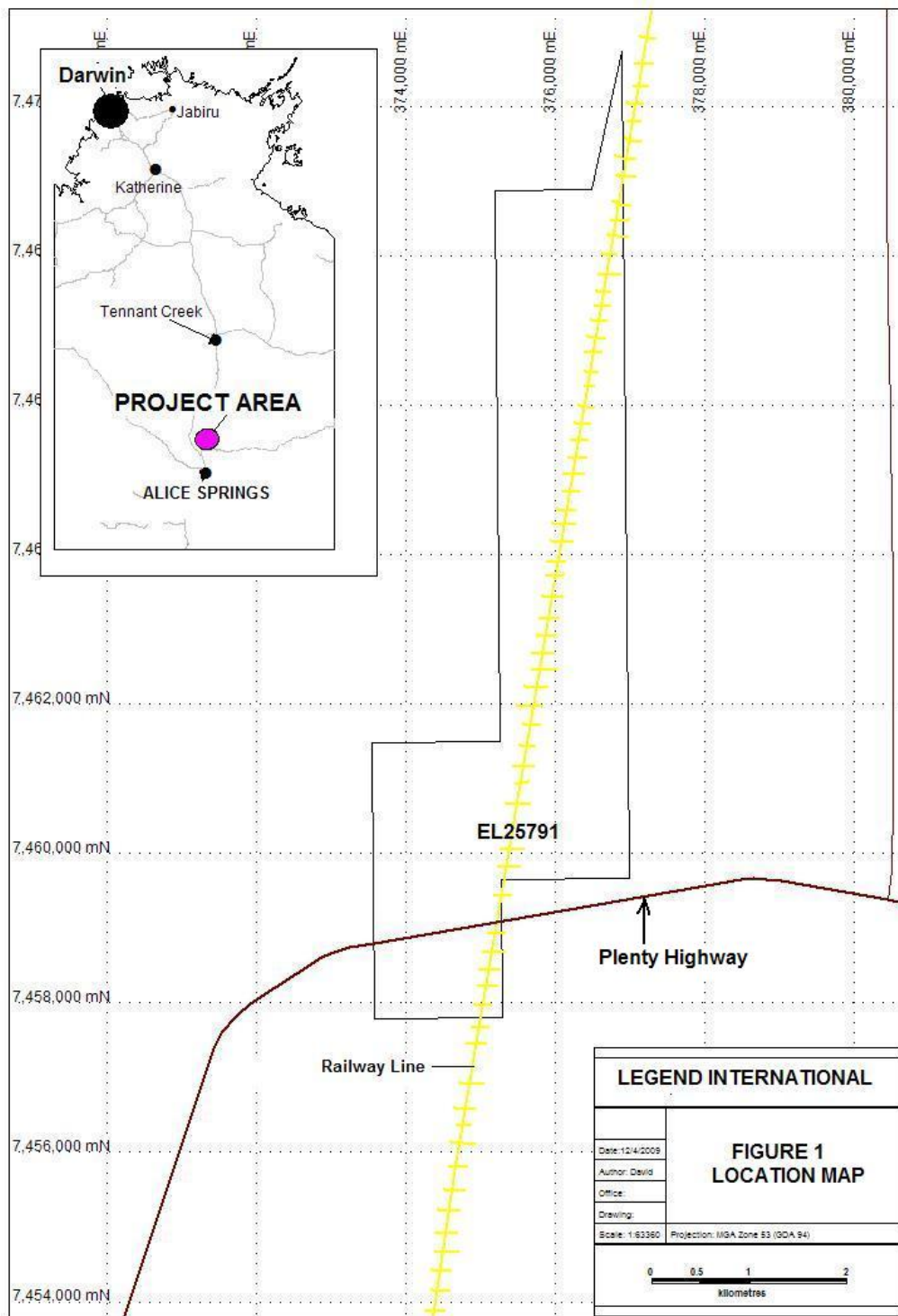
The tenement was applied for on 7 December 2006 by Legend International Investments Pty Ltd and was granted on 22 February 2008 for a period of 6 years. It covers 8 blocks (22.53 km<sup>2</sup>). In 2008, Legend International entered into an agreement with NU Power Resources Limited to explore uranium in the project area.

## **3.0 LOCATION AND ACCESS**

EL 25791 is situated in central Australia and is located about 1400 km south of Darwin and 84 km north of Alice Springs (Figure 1). The tenement is intersected by Alice to Darwin Railway. Southern part of the tenement is intersected by Plenty Highway. Two topographic high points Mt Strangways and Mt Byrne are located about 20 km SE and NW of the licence area. Tenement is situated in the southern part of the Alcoota (1:250 000) sheet area and Bushy Park (1:100 000) sheets. Access to the project area is gained by Plenty Highway and then via four wheels drive station tracks. The project area is mainly covered by red sandy plains with occasional sand dunes.

The area experiences a continental desert climate with annual rain of about 100 millimetres. Summers are dry and hot with maximum temperature over 50°C whilst winters are relatively cooling (maximum 30°C). Winter season is the most suitable for exploration.

**Figure 1: Tenement Location Map**



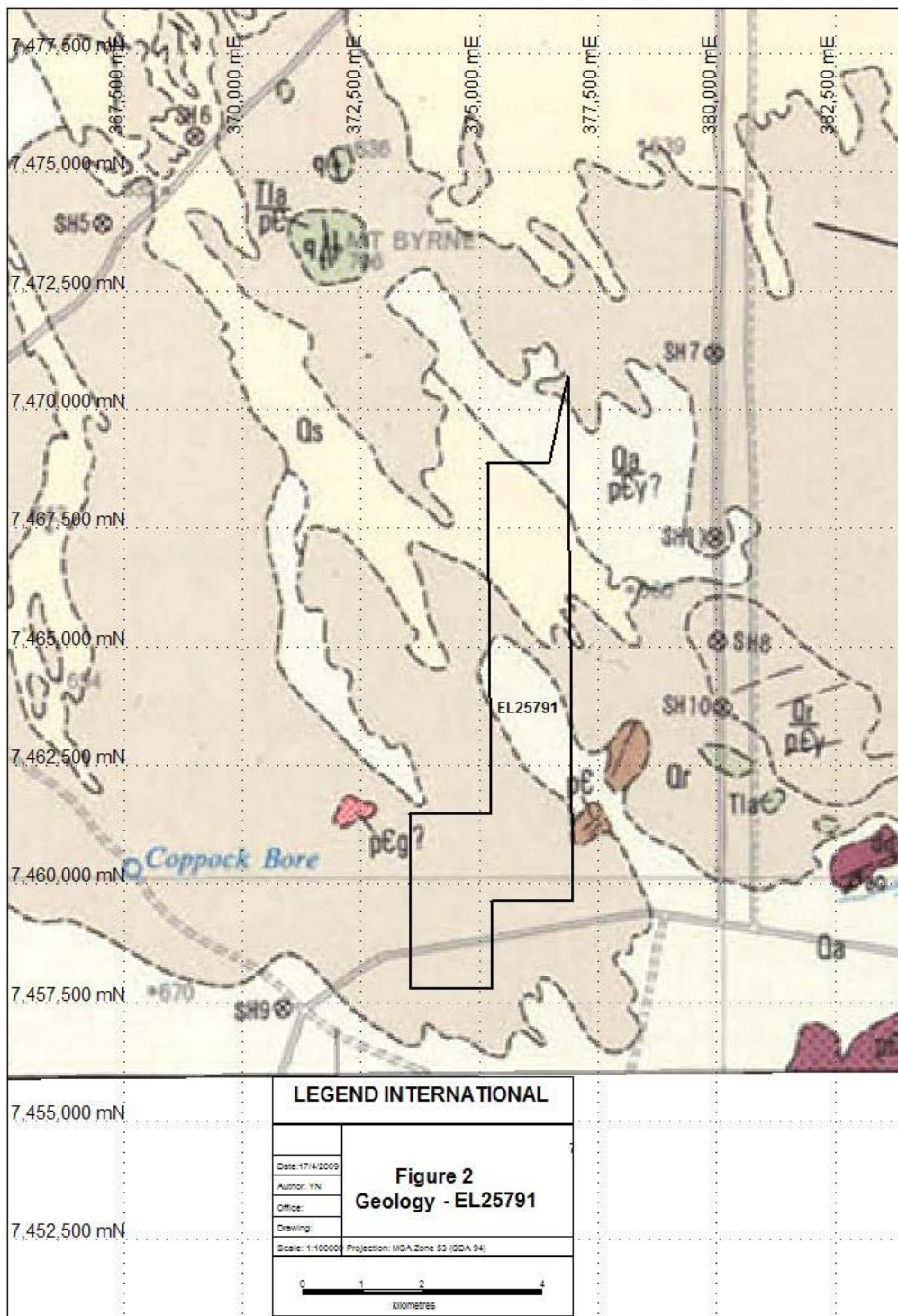
## 4.0 GEOLOGICAL SETTING

The project area is situated within southern part of the Ngalia Basin which probably overlies Palaeoproterozoic Arunta Blocks. The Strangways Complex forms part of the southern Arunta Block which consists of Palaeoproterozoic volcanics and sedimentary rocks, which were strongly deformed and metamorphosed to granulite and amphibolite facies and intruded by granite in Palaeoproterozoic (Shaw and Warren, 1975). An episode of migmatization occurred during Neo-Palaeoproterozoic followed by wide spread thrust-faulting and associated retrogressive metamorphism occurred in Neoproterozoic (Alice Springs Orogeny). A major north-west gravity lineament known as Woolwonga Lineament is present in the northern part of the area. The Mud Tank Carbonatite intrusion and ultramafic Mordor Complex are both possibly related to this lineament.

The geological mapping done so far indicate that the Strangways Complex consists essentially of high-grade metamorphic rocks – granulite of mafic and felsic and pelitic compositions, including pyroxene granulite, cordierite granulites, charnockites, anorthosite and migmatites. The metamorphics comprised of amphibolites, gneisses, schists, marbles, pegmatites and meta-dolerites. Common mineral assemblages are quartz-hypersthene-cordierite-biotite and garnet.

In EL 25791, much of the area particularly northern part is covered by recent sediments (Figure 2). In the southern part of the tenement rocks of the Ngalia Basin may dominate which also have been overlain by recent sediments including alluvium, red sand accumulation and minor calcrete. However, magnetic image of the project area shows (Figure 3) that under the recent sedimentary cover, particularly the southern part of the area is dominated by the basement rocks of the Arunta Block. These are characterised by magnetic ridges which are oriented EW direction and conforms to the general strike of the basement in central Australia.

**Figure 2: Geological Setting of the Project Area**



## **5.0 PREVIOUS EXPLORATION**

The project area constitutes a small portion and has been explored and investigated as part of the expired tenements.

Perhaps the earliest investigation of the area started with the exploration of area south of EL 25791 (Fruzzetti, 1969). During this program a base metal – gold prospect (Coles Hill) was discovered. Gold values as high as 1.56 g/t were assayed. This type of mineralisation is thought to be stratiform, stratabound and has been described as Kuroko-type.

Geological mapping of the area was undertaken by Bureau of Mineral Resources, Geology and Geophysics in 1975 (Shaw and Warren, 1975). During this exercise, the area was mapped first time as part of Alcoota (1:250 00) project. This led to division of main geological stratigraphy which forms the basis of our geological understanding of the area.

In 1977-78, northern part of the tenement area was explored under ELs 1889 and 1891 for base metals mineralisation. It involved a detail literature search and two weeks field work. Prospects identified during field work such as Red Rock Bore, Harry's Creek and Edwards Creek prospects (Close, 1979a) are located south of EL 25791. Base metals mineralisation discovered so far has been classified as stratiform, stratabound Kuroko-type, and it resembles to that of Coles prospect, discussed earlier.

Base metals prospects were further explored in 1979 by Amdex Mining Limited (Close, 1979b). These prospects were tested with I.P geophysical survey. Red Bore Rock and Harry's Creek prospects registered encouraging response. It shows the presence of anomalies over and along strike from known stratiform mineralisation. In addition, 156 soil and bed rock chip/channel samples were collected. A strongly anomalous zone with maximum value of 385 ppm of Cu, 1583 ppm of Pb and 1160 ppm of Zn concentrations was delineated.



## **6.0 EXPLORATION ACTIVITY YEAR ENDING 21 FEBRUARY 2009**

EL 25791 was granted on 22 February 2009 and Legend International commenced exploration activities in the project area. This involved collection and review of geoscientific and exploration data from NT Geological Survey Darwin, in order to understand geological setting of the project area and mineral potential which may exist. In addition, Legend International entered into an optional agreement with NU Power Resources Limited in order to explore the project area for uranium more effectively. Details of data review and exploration activities are given below.

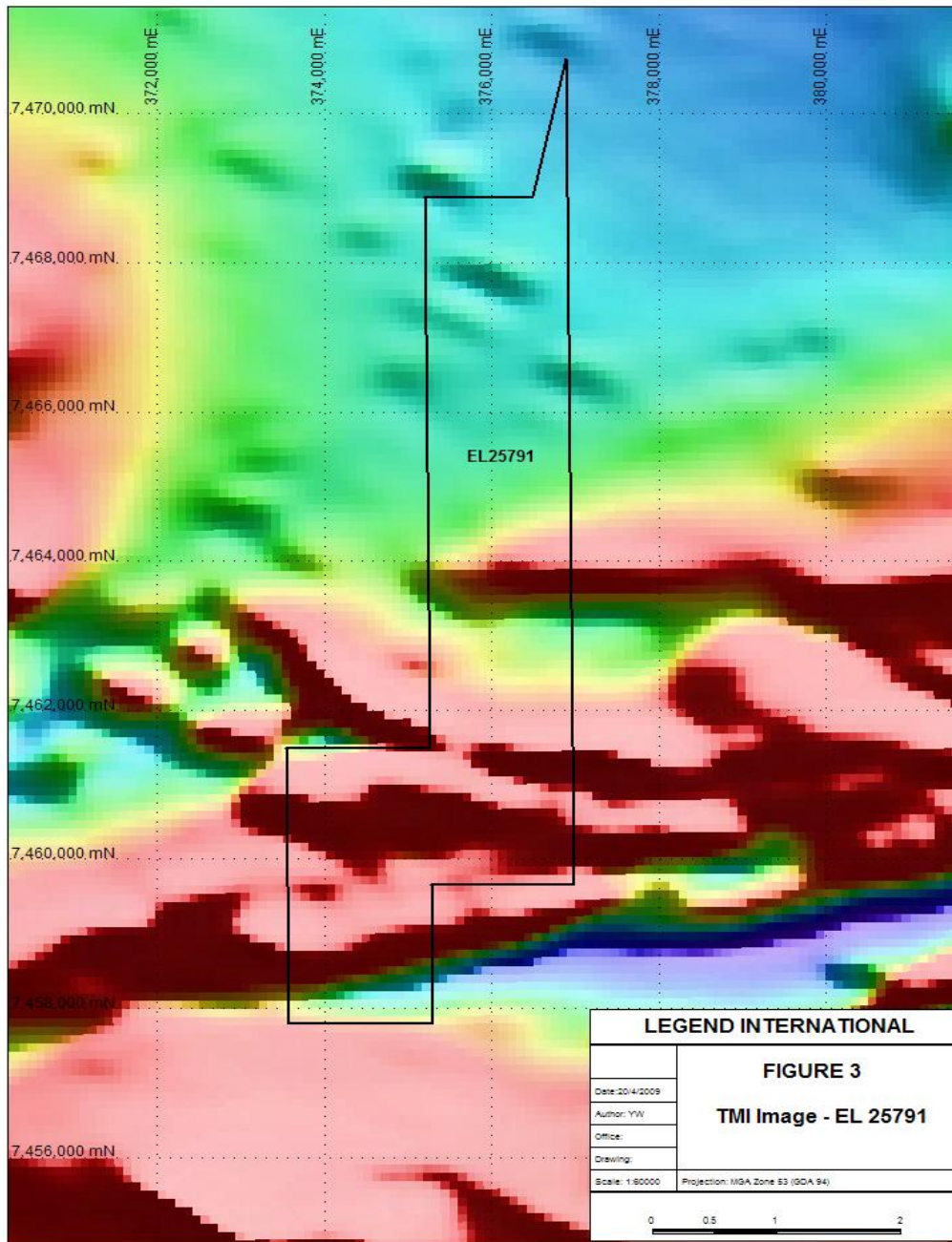
Technical review of the geoscientific data relies on mapping by Bureau of Mineral Resources in 1975 which provide the basis of our understanding of the area. Project area is mainly covered recent sediments which hampers access to the bed rock geology. TMI image (Figure 3) of the area has provided insight into the bed rock geology, particularly southern part of the project area, where under cover rocks of the Arunta Block are present. These areas are characterised by high magnetic ridges and points towards their mafic nature. These are probably amphibolite, dolerite, or other rocks of mafic composition (i.e banded iron formation).

The northern part of the project area lacks any magnetic character apart from subtle ridges or anomalies which may be moderately magnetic. These probably are mainly red sand accumulation, or here basin may contain non-magnetic sequence or may be deeper as compared to southern parts of EL 25791.

Radiometric image of the project is quite flat and does not reveal any significant radiometric anomaly (STRIKE, NTGS online mapping system). Probably, it is too broad and is not suitable for small area covered by EL 25791.

During the reporting period, to ascertain the depth of the sedimentary basin

**Figure 3: TMI Image of the Project Area**



an AEM and gravity survey (sponsored by NTGS/GA) was carried out (related digital data are provided in Appendix 1) because it has bearing on the uranium potential of the area. In the Ngalia Basin surficial type uranium mineralisation is common (Lally and Bajwah, 2006) where uraniferous ground water evaporation in playa lake environment led to concentration of uranium deposits in the region.

Both data sets were processed and interpreted to generate a basement model. AEM model is shown in Figure 4 where it reveals that the basement is shallow, and furthermore no palaeochannels were detected. This means that sedimentary sequence is not thick enough to support any hydrological regime which could be responsible for uranium mineralisation. Therefore, this interpretation downgrades the potential of surficial/secondary uranium mineralisation in the project area. However, near-surface presence of basement which is characterised by significant EW-trending magnetic ridges (Figure 3) could be important for base metal-gold mineralisation.

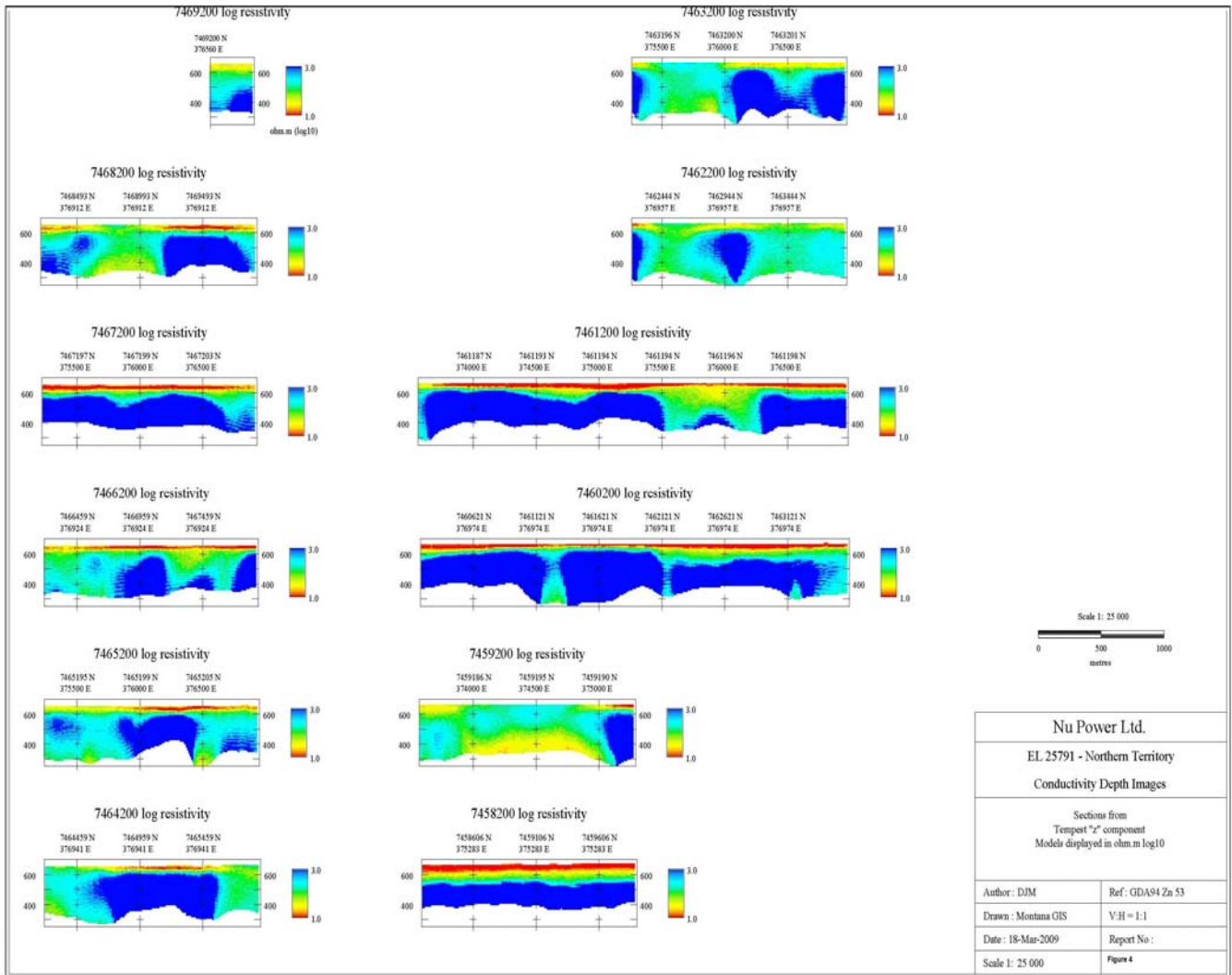
Gravity data did not reveal any significant concealed structure. Twenty kilometres west of the project area, gravity survey revealed an intersection of a regional NW-trending structural zone and an ENE-trending shear zone.

## **Conclusions and Recommendations**

Much of the project area is covered by recent sediments which hampers access to the bed rock geology. AEM and gravity data shows that sedimentary cover is thin which may not support a hydrological regime which could be responsible for channel-type or surficial-type uranium deposits in the project area.

However, magnetic data have revealed concealed magnetic ridges which could be important for base metal-gold mineralisation. This contention is supported by the presence of a number of base metal-gold prospects which are located immediately south of the project area. On the basis of information, following recommendations are made:

**Figure 4: Conductivity Depth Image from EL 25791**



Nu Power Ltd.	
EL 25791 - Northern Territory Conductivity Depth Images	
Sections from Tempest "z" component Models displayed in ohm.m log10	
Author : DJM	Ref : GDA94 Zn 53
Drawn : Montana GIS	V:H = 1:1
Date : 18-Mar-2009	Report No :
Scale 1: 25 000	Figure 4

- Project area should be mapped in detail in order to document the presence of basement rocks.
- Samples collected during mapping programs should be analysed for base metals, gold and uranium.
- A campaign of RC drilling should be undertaken to determine the extent of cover sedimentary sequence of the basement and nature of basement should be determined
- Chip samples retrieved during drilling should be appraised by petrographic and geochemical analyses for possible base metals, gold and uranium mineralisation.

This exploration activity costed \$18110.00 and details are given in attached Appendix 2.

## **7.0 PROPOSED EXPLORATION FOR YEAR ENDING 21 FEBRUARY 2010**

To understand geology of the area, a detail geological mapping of the area will be undertaken. A campaign of RC drilling will be conducted to access to bed rock geology. Geochemical samples collected during mapping and drilling will be analysed for base metals, gold and uranium. A minimum budget of \$20000.00 is proposed for this program.

## **8.0 REFERENCES**

- Close, R.J., 1979(a), Strangways Range, Northern Territory, EL 1889 – Yambah and EL 1891 – Harry Creek, Quarterly Report for Period Ending 4 April 1979. Dept of Mines and Energy Company Report CR1979-0057
- Close, R.J., 1979(b), Strangways Range, Northern Territory, EL 1889 – Yambah and EL 1891 – Harry Creek, Quarterly Report for Period

Ending 4 October 1979. Dept of Mines and Energy Company Report  
CR1979-0057

Lally, JH and Bajwah, ZU., 2006, Uranium Deposits of the Northern Territory.  
Northern Territory Geological Survey Report 20.

Shaw, RD and Warren, RG., 1975, Alcoota (1:250 000) Explanatory Notes  
and Geological Map. Bureau of Mineral Resources, Geology and  
Geophysics, Canberra.

**APPENDIX 2: Mine Exploration Expenditure Year Ending 21 February  
2009**

<b>NORTHERN TERRITORY EXPLORATION EXPENDITURE FOR MINERAL TENEMENT</b>
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<b>Section 1. Tenement type, number and operation name: (One licence only per form even if combined reporting has been approved)</b>
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<b>Type</b>	<i>Exploration Licence</i>
<b>Number</b>	<i>25791</i>
<b>Operation Name (optional)</b>	<i>Coppock Bore</i>

<b>Section 2. Period covered by this return:</b>
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<b>Twelve-month period:</b>		<b>If Final Report:</b>	
From	<i>22/02/08</i>	From	
To	<i>21/02/09</i>	To	
Covenant for the reporting period:		<b>\$45,000.00</b>	

<b>Section 3. Give title of accompanying technical report:</b>
--

<b>Title of Technical Report</b>	<p style="text-align: center;">Annual report on EL 25791 (<i>Coppock Bore</i>)</p> <p style="text-align: center;">from 22 February 2008 to 21 February 2009</p> <p style="text-align: center;">Central Australia, Northern Territory</p>
<b>Author</b>	<i>Yan Yao</i>

**Section 4. Locality of operation:**

Geological  
Province  
Geographic  
Location

**Arunta Province**  
**Aileron**

**Section 5. Work program for the next twelve months:**

**Activities proposed** (please mark with an  "X"):

- |  |  |
|--|--|
| <input type="checkbox"/> Literature review                             | <input type="checkbox"/> Airborne geophysics |
| <input checked="" type="checkbox"/> Geological mapping                 | <input type="checkbox"/> Ground geophysics   |
| <input checked="" type="checkbox"/> Rock/soil/stream sediment sampling | <input type="checkbox"/> Other:              |

**Estimated Cost:** \$20,000.00

**Section 6. Summary of operations and expenditure:**

Please include salaries, wages, consultants fees, field expenses, fuel and transport, administration and overheads under the appropriate headings below. Mark the work done for the appropriate subsections with an "X" or similar, except where indicated. Complete the right-hand columns to indicate the data supplied with the Technical Report. Note overheads are not to exceed 15% of total.

**Do not include the following as expenditure (if relevant, these may be**

- |                          |                  |                                  |
|--------------------------|------------------|----------------------------------|
| • Insurance              | • Transfer costs | • Land Access Compensation       |
| • Company Prospectus     | • Title Search   | • Meetings with Land Councils    |
| • Rent & Department Fees | • Legal costs    | • Payments to Traditional Owners |
| • Bond                   | • Advertising    | • Fines                          |

Exploration Work type	Work Done (mark with an "X" or provide details)	Expenditure	Data and Format Supplied in the Technical Report	
			Digital	Hard copy
<b>Office Studies</b>				
Literature search	<b>x</b>	\$1280.00		
Database compilation	<b>x</b>	\$600.00		
Computer modelling				
Reprocessing of data	<b>x</b>	\$5,301.00	<b>x</b>	
General research				
Report preparation	<b>x</b>	1530.00	<b>x</b>	
Other (specify) - Admin	<b>x</b>	\$1,819.00		
<b>Subtotal</b>		<b>\$10530.00</b>		
<b>Airborne Exploration Surveys (state line kms)</b>				
Aeromagnetics		kms		
Radiometrics		kms		
Electromagnetics	<b>27.9</b>	kms	\$4,221.00	<b>x</b>
Gravity	<b>7 stations</b>	kms	\$509.00	<b>x</b>
Digital terrain modelling		kms		
Other (specify)		kms		
<b>Subtotal</b>		<b>\$4,730.00</b>		
<b>Remote Sensing</b>				
Aerial photography				
LANDSAT				
SPOT				
MSS				
Other (specify)				
<b>Subtotal</b>		<b>\$</b>		
<b>Ground Exploration Surveys</b>				
<b>Geological Mapping</b>				
Regional				
Reconnaissance	<b>x</b>	2855.00		
Prospect				
Underground				
Costean				
<b>Ground Geophysics</b>				
Radiometrics				
Magnetics				
Gravity				
Digital terrain modelling				
Electromagnetics				
SP/AP/EP				
IP				



Exploration Work type	Work Done (mark with an "X" or provide details)	Expenditure	Data and Format Supplied in the Technical Report	
			Digital	Hard copy
AMT/CSAMT				
Resistivity				
Complex resistivity				
Seismic reflection				
Seismic refraction				
Well logging				
Geophysical interpretation				
Petrophysics				
Other (specify)				

<b>Geochemical Surveying and Geochronology</b>					
<i>(state number of samples)</i>					
Drill (cuttings, core, etc.)					
Stream sediment					
Soil					
Rock chip					
Laterite					
Water					
Biogeochemistry					
Isotope					
Whole rock					
Mineral analysis					
Laboratory analysis (type)					
Petrology					
Other (specify)					
<b>Ground Exploration Subtotal</b>				<b>\$2855.00</b>	
<b>Drilling (state number of holes &amp; metres)</b>					
Diamond		holes	metres		
Reverse circulation (RC)		holes	metres		
Rotary air blast (RAB)		holes	metres		
Air-core		holes	metres		
Auger		holes	metres		
Other (specify)		holes	metres		
<b>Subtotal</b>				<b>\$</b>	
<b>Other Operations</b>					
Costeaming/Trenching					
Bulk sampling					
Mill process testing					
Ore reserve estimation					
Underground development (describe)					
Mineral processing					
Other (specify)					
<b>Subtotal</b>				<b>\$</b>	
<b>Access and Rehabilitation</b>					
Track maintenance					
Rehabilitation					
Monitoring					
Other (specify)					
<b>Subtotal</b>				<b>\$</b>	

<b>TOTAL EXPENDITURE</b>	<b>\$18110.00</b>	
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**Section 7. Comments on your exploration activities:**

EL25791 (Coppock Bore) was included in the 2008 AEM and Central Arunta Gravity Surveys. It is apparent from the EM Survey that basement is very shallow (consistent with sparse granite outcrop) and that there are no palaeochannels present. This down grades the potential for secondary sandstone hosted uranium in palaeochannels.

I certify that the information contained herein, is a true statement of the operations carried out and the monies expended on the above mentioned tenement during the period specified as required under the *Northern Territory Mining Act* and the Regulations thereunder.

I have attached the Technical Report

1. Name:	Yan Yao	2. Name:	
Position:	Geologist	Position:	
Signature:		Signature:	
Date:	21/04/2009	Date:	

